



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/802,920

03/18/2004

Kye-jin Jeon

249/452

5432

27849 7590 12/26/2006
LEE & MORSE, P.C.
3141 FAIRVIEW PARK DRIVE
SUITE 500
FALLS CHURCH, VA 22042

EXAMINER

BERHANU, ETSUB D

ART UNIT

PAPER NUMBER

3768

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

12/26/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/802,920	Applicant(s) JEON ET AL.	
	Examiner Etsub D. Berhanu	Art Unit 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 11-16 and 21 is/are rejected.
- 7) ☐ Claim(s) 2-10 and 17-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

2. Claims 1, 11-16 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Harjunmaa et al.'042 (previously cited).

Harjunmaa et al.'042 discloses a method of non-invasively measuring a concentration of a body component, the method comprising: varying a thickness of a body part of a subject, measuring absorption spectrums at different thicknesses of the body part, and obtaining a first differential absorption spectrum between the absorption spectrums measured at different thicknesses (col. 4, line 22 – col. 5, line 15), actually measuring concentrations of the blood component and establishing a statistical model using the first differential absorption spectrum and the actually measured concentrations (col. 6, lines 26-31), and estimating the concentration of the body component using a second difference absorption spectrum measured from the body part using the statistical model (col. 5, lines 6-15), wherein the second difference absorption spectrum is obtained after the statistical model has been established, in the same manner that the first differential absorption spectrum is measured.

Figure 1 of Harjunmaa et al.'042 discloses a non-invasive body component measuring apparatus comprising: a light source unit 10, 12-16, 24, and 25; a body-machine interface unit 30, wherein the body-machine interface unit comprises a beam guide portion 37, a light receiver 39, a holder 32 attached to the light receiver, and securing/compressing members 31 and 32; a detection unit 19 and 21; and a signal processing unit 22. The signal processor generates a signal for the body-machine interface unit to apply pressure to change the thickness of the body part (col. 4, lines 52-55), and estimates the concentration of a blood component from a second differential absorption spectrum obtained at the body part based on a statistical model of the blood component (col. 5, lines 6-15 and col. 6, lines 26-34). Harjunmaa et al.'042 also discloses the use of a spectroscope for separating light emitted from a light source into components of different wavelengths (col. 7, lines 19-23).

Harjunmaa et al.'042 further discloses using two wavelength pairs in a sequential mode, thus creating four absorption spectrums and two first differential absorption spectrums measured from the body part at the first and second thicknesses (one between the first and second absorption spectrums, and one between the third and fourth absorption spectrums), wherein a blood component concentration measurement is made according to the method described above (col. 6, lines 35-42). It is noted that multivariate statistical analysis is performed on the two first differential absorption spectrums in order to determine a blood component concentration measurement.

Regarding claim 11, it is noted that the signal processor (Figure 1, signal processing unit 22) is capable of executing the method as discussed above. Regarding claims 15 and 16, it would have been within the skill of the art, through due experimentation, to determine an appropriate variation between the initial thickness and first thickness, and between the first thickness and second thickness, in order to provide accurate measurement results.

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter: None of the prior art teaches or suggests, either alone or in combination, a method of noninvasively measuring a concentration of a blood component or an apparatus for noninvasively measuring a concentration of a blood component wherein either the method or apparatus comprises: determining an initial thickness of the body part of the subject, increasing the thickness of the body part from the initial thickness to a first thickness and measuring a first absorption spectrum with respect to the body part, and increasing the thickness of the body part from the first thickness to a second thickness and measuring a second absorption spectrum with respect to the body part; determining an initial thickness of the body part of the subject, increasing the thickness of the body part from the initial thickness to a first thickness and holding the state in standby for a predetermined period of time; or increasingly varying the thickness of a body part from a first thickness to a second thickness and then to a third thickness, in combination with the other claimed steps or elements.

4. Claims 2-10 and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed 29 September 2006 have been fully considered but they are not persuasive in regard to claims 1, 11-14 and 21. Applicant argues on pages 13-14 of the remarks that Harjunmaa et al.'042 does not disclose establishing a statistical model about the body component. Harjunmaa et al.'042 discloses a method of establishing a calibration model by using an actually-measured concentration of a body component and 'performing a measurement according to this method' (col. 6, lines 25-31), wherein 'this method' comprises measuring a first and second absorption spectra

Art Unit: 3768

(col. 4, line 22 – col. 5, line 15). Harjunmaa et al.'042 further discloses that this established statistical model, along with a difference absorption spectrum (col. 5, lines 6-10) is used to estimate the concentration of a body component (col. 5, lines 6-15). Therefore, the rejection set forth in the previous Office Action in regard to claims 1 and 11 are upheld.

6. Applicant's arguments, see page 15 of the remarks, filed 29 September 2006, with respect to the rejection(s) of claim(s) 12-14 under Harjunmaa et al.'042 have been fully considered and are persuasive. However, upon further consideration, a new ground(s) of rejection has been made. As noted above in paragraph 2, Harjunmaa et al.'042 does disclose the use of a spectroscope to separate light into components having different wavelengths (col. 7, lines 19-23).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yasuda et al.'828 discloses an apparatus comprising a light source, a spectroscope, a body-machine interface unit and a detection unit, but fails to disclose a signal processor that generates a signal to the body-machine interface unit to apply pressure to change the thickness of a body part. Oppelt et al.'894 discloses an apparatus comprising a light source, a body-machine interface unit, a detection unit and a signal processor that generates a signal for the body-machine interface unit to apply pressure to change the thickness of a body part, but fails to disclose a spectroscope.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etsub D. Berhanu whose telephone number is 571.272.6563. The examiner can normally be reached on Monday - Friday (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on (571)272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3768

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EDB

ERIC F. WINAKUR
PRIMARY EXAMINER

53